Work Order ID 84467

May-14-12 9:17:12 AM

84467

Ship May 28th

Item ID: D212-725-1-901 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: COLLECTIVE BELL CRANK ASSEMBLY **Stop** *NS2*

Start Date: 14/05/2012 **Start Qty:** 2.00 *2*

Required Date: 28/05/2012 **Req'd Qty:** 2.00 *2*

Reference:

Cust Item ID:

Customer:

Approvals: **Process Plan:** MLJ **Date:** 12/05/12 **Tooling:** **Date:** **Run Start** *NR1*

QC: **Date:** **SPC (Y/N):** **Date:** **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	**Revision Nbr**								
D4215	A								
100		0.00							
100									
Small Fab	**Memo**	0.00							
Small Fab	****Critical Part,MRB decisions on this part may only be performed by DART DE#02.Any changes to the design,manufacturing process,approved operating enviroment,and design loading spectrum will require a review of the fatigue evaluation for this part**********								
	1- Install sleeve and bearing as per dwg 2- Stake bearing as per dwg								
110	QC5- Inspect part completeness to step on W/O	0.00							
110									
QC	**Memo**	0.00							
Quality Control									

12-06-07 2 2 12.06.07

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W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 84467

May-14-12 9:17:12 AM

84467

Item ID: D212-725-1-901 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: COLLECTIVE BELL CRANK ASSEMBLY **Stop** *NS2*

Start Date: 14/05/2012 **Start Qty:** 2.00 *2*

Required Date: 28/05/2012 **Req'd Qty:** 2.00 *2*

Reference:

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:**

QC: **Date:** **SPC (Y/N):** **Date:**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	Spray Painting per QSI005 4.2	0.00				AB	12-6-	8	②
120 SprayPaint Spray Painting	**Memo** ***Mask bearing prior to prime and paint*** 1- Prime ~~and paint~~ as per dwg	0.00							
130	QC14- Inspect Spray Paint	0.00							
130 QC Quality Control	**Memo**	0.00 5/17/06				②			
140	Identify as per dwg & Stock Location:_____	0.00							
140 Packaging Packaging	**Memo**	0.00				2x		12/6/06	

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W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

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			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 84467

May-14-12 9:17:12 AM

84467

Item ID: D212-725-1-901 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: COLLECTIVE BELL CRANK ASSEMBLY **Stop** *NS2*

Start Date: 14/05/2012 **Start Qty:** 2.00 *2* **Cust Item ID:**

Required Date: 28/05/2012 **Req'd Qty:** 2.00 *2* **Customer:**

Reference:

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:** **Run Start** *NR1*

QC: **Date:** **SPC (Y/N):** **Date:** **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC21- Final Inspection - Work Order Release	0.00							
150									
QC	**Memo**	0.00							
Quality Control									

MLJ 12/06/08

MF 12-06-08

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W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

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			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

May-14-12 9:17:17 AM

Work Order ID: 84467 *84467*

Parent Item: D212-725-1-901 *D212-725-1-901*

Parent Item Name: COLLECTIVE BELL CRANK ASSEMBLY

Start Date: 14/05/2012 **Required Date:** 28/05/2012

Start Qty: 2.00 **Required Qty:** 2.00

Comments: IPP Rev:A now made in house DD 10.02.08 verified by:JLM IPP Rev:B as per ECN10-532 DD 10.04.08 verified by:JLM Ipp Rev:C Added "Critical Part"Note 10-06-02 Verified By:DD ****Critical Part,MRB decisions on this part may only be performed by DART DE#02.Any changes to the design,manufacturing process,approved operating enviroment,and design loading spectrum will require a review of the fatigue evaluation for this part**********

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
120-013-3A		Purchased	No			100	Each	19.0000	1	2			
120-013-3A									**				
sleeve													
				Location		Loc Qty		Loc Code					
				ST381		19							
					113699	19				2	✓	12-06-07	
120-015-5A		Purchased	No			100	Each	15.0000	1	2			
120-015-5A									**				
sleeve													
				Location		Loc Qty		Loc Code					
				ST381		15							
					113699	15				2	✓	12-06-07	
D212-725-1-007		Manufactured	No			100	Each	0.0000	1	2			
D212-725-1-007					84622				**	2	✓	12-06-07	
COLLECTIVE BELL CRANK													
MS276433		Purchased	No			100	Each	34.0000	1	2			
MS276433									**				
bearing													
				Location		Loc Qty		Loc Code					
				GA		34							
					113673	34				2	✓	12-06-07	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

May-14-12 9:17:17 AM

Work Order ID: 84467 *84467*

Parent Item: D212-725-1-901 *D212-725-1-901*

Parent Item Name: COLLECTIVE BELL CRANK ASSEMBLY

Start Date: 14/05/2012 **Required Date:** 28/05/2012

Start Qty: 2.00 **Required Qty:** 2.00

MS276475	Purchased	No		100	Each	36.0000	1	2

MS276475 **

bearing

Location	Loc Qty	Loc Code
GA	36	
113673	36	

2 of 12-06-07

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

ITEM	QTY -901	PART NUMBER	DESCRIPTION
1	X	D212-725-1-901	COLLECTIVE BELLCRANK ASS'Y
2	1	D212-725-1-007	COLLECTIVE BELLCRANK
3	1	120-013-3A	SLEEVE
4	1	120-015-5A	SLEEVE
5	1	MS27643-3	BEARING
6	1	MS27647-5	BEARING

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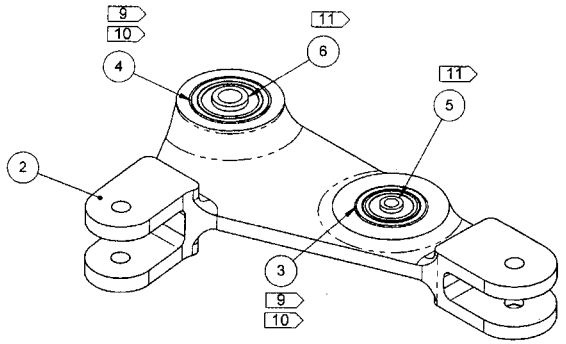
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO 84467 MW
12/05/14



RELEASED
2011 -08- 25

D212-725-1-901 COLLECTIVE BELLCRANK ASSY

CRITICAL PART
MRB DECISIONS ON THIS PART MAY ONLY BE PERFORMED BY DART DE#02. ANY CHANGES TO THE DESIGN, MANUFACTURING PROCESS, APPROVED OPERATING ENVIRONMENT, AND DESIGN LOADING SPECTRUM WILL REQUIRE A REVIEW OF THE FATIGUE EVALUATION FOR THIS PART.

NOTES:
1) MATERIAL: N/A
2) FINISH: PRIME YELLOW PER DART QSI 005 4.2
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
7) WEIGHT: 0.68 lbs
8) SWAGE/STAKE PER QSI 002
9) SLEEVE ID AND OD MAY BE ADJUSTED TO PROVIDE PROPER FIT
10) SLEEVE SHOULD FIT INTO BELLCRANK USING FINGER PRESSURE ONLY
11) BEARING SHOULD FIT INTO SLEEVE USING FINGER PRESSURE ONLY

REV.	DESCRIPTION	BY	DATE
A	NEW ISSUE	RF	11.02.24

DESIGN	DC	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4215	SHEET 1 OF 2
APPROVED		TITLE	SCALE
DE APPR.		COLLECTIVE BELLCRANK	NTS
DATE	11.02.24		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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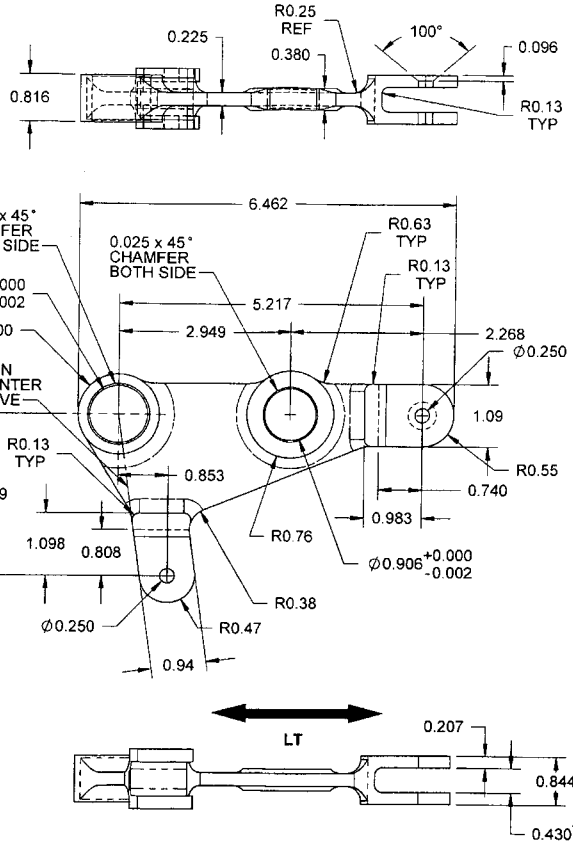
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

84467



RELEASED
2011 -08- 25

NOTES:
1) MATERIAL: 7075-T7351 ALUMINUM
PER QQ-A-250/12
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
7) WEIGHT: 0.39 lbs
8) LPI PER ASTM 1417 LEVEL 2
9) SURFACE FINISH TO BE NO GREATER THAN 80 MICROINCH

D212-725-1-007 COLLECTIVE BELLCRANK

CRITICAL PART
MRB DECISIONS ON THIS PART MAY ONLY BE PERFORMED BY DART DE#02. ANY CHANGES TO THE DESIGN, MANUFACTURING PROCESS, APPROVED OPERATING ENVIRONMENT, AND DESIGN LOADING SPECTRUM WILL REQUIRE A REVIEW OF THE FATIGUE EVALUATION FOR THIS PART.

DESIGN	DC	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED		DRAWING NO. D4215 REV. A
MFG. APPR.		SHEET 2 OF 2
APPROVED		TITLE COLLECTIVE BELLCRANK SCALE NTS
DE APPR.		
DATE	11.02.24	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Ring Staking Procedure:

Ring staking is used on steel and aluminum sleeves. Ring stake is centered on the sleeve and lays over a portion of sleeve to the part and a portion of sleeve to the bearing as shown in Figure 1. Refer to Table 1 for the applicable tools.

1. Ring stake as follows:

CAUTION

EXTREME CARE MUST BE EXERCISED TO AVOID ANY CONTAMINATION OF BEARING DURING ALL PHASES OF HANDLING AND INSTALLATION.

1.1 Measure the bore of the part, new bearing and new bearing sleeve to make sure dimensions will provide the interference fit given in Table 2.

1.2 Apply coating, as specified in Table 2, to the outside diameter of the new sleeve and to the mating bore in the part.

1.3 While coating is wet, press the sleeve into the part with the bearing/sleeve removal and installation tool set. See Figure 1. The sleeve must be equally centered from each side of the part.

1.4 Apply coating, as specified in Table 2, to the outside diameter of a new bearing and to the inside diameter of the previously installed sleeve. Avoid excessive application of coating and do not apply to the bearing seals or shields

CAUTION

DURING BEARING INSTALLATION, MAKE SURE YOU APPLY PRESSURE ONLY TO THE OUTER RACE. DO NOT APPLY PRESSURE TO THE INNER RACE AND SPHERICAL BALL OF THE BEARING OR DAMAGE MAY OCCUR.

1.5 While coating is wet, press the new bearing into the sleeve with the bearing/sleeve removal and installation tool set. See Figure 1. The bearing must be equally centered from each side of the part.

1.6 Select the applicable ring staking tool given in Table 1. Ring stake to obtain required dimensions on both sides of the sleeve as shown in Figure 2.

1.7 Clean any excess coating with clean cheesecloth (C-486) moistened with dry-cleaning solvent (C-304).

1.8 Make sure there is no movement or looseness of the bearing outer race in the bore of the part.

1.9 Examine the bearing for smooth rotation and breakout (misalignment), breakaway or rotational (roll) torque as specified in Table 1.

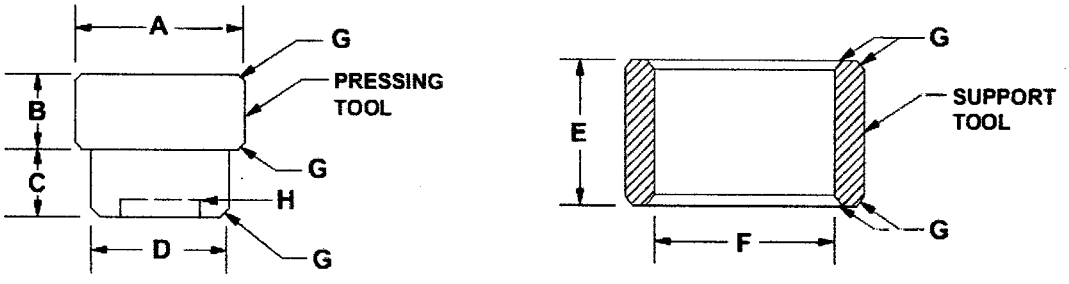
Table 1 – Staking Tool Set Application

TOOL PART NO.	SLEEVE PART NO.	MANUFACTURER'S BEARING PART NO.	MILITARY STANDARD BEARING PART NO.
T101873-5	120-013-3	DSP3 and DSRP3	MS27643-3
T101873-11	120-015-5	DW5	MS27647-5

Table 2 – Bearing and Sleeve Replacement Data

COMPONENT	BEARING P/N AND HOLE (BORE) SIZE FOR BEARING	SLEEVE P/N AND HOLE (BORE) SIZE FOR SLEEVE	TYPE OF STAKE AND TOOL NUMBER
D212-725-1-901	MS27647-5 0.8738 TO 0.8743 Inch (22.1945 to 22.2072 mm)	120-015-5A 0.9990 to 1.0000 Inch (25.3746 to 25.4000 mm)	Ring Stake T101873-11
D212-725-1-901	MS27643-3 0.7769 to 0.7774 Inch (19.7333 to 19.7460 mm)	120-013-3A 0.9060 to 0.90635 Inch (23.0124 to 23.0251 mm)	Ring Stake T101873-5

Notes:
1 – Install bearing/bearing sleeve with unreduced zinc chromate primer (Loctite 609 also acceptable) on faying surfaces.
2 – Stake on both sides of sleeve



MATERIAL: ANY ROUND ALLOY STOCK

NO.	REF LTR	DIMENSIONS
1	A	Slightly smaller than sleeve outside diameter.
2	B	Two times the bearing length.
3	C	Two times the bearing width.
4	D	Slightly smaller than bearing inside diameter.
5	E	Slightly longer than bearing or sleeve height/length.
6	F	Slightly larger than bearing or sleeve O.D.
7	G	Chamfer 0.025 inch (0.635 mm) by 45°.
8	H	Undercut 0.4 inch (10.16 mm) to provide clearance for shoulder diameter bearing inner ring.

Figure 1 – Bearing/Sleeve Removal and Installation Work aids

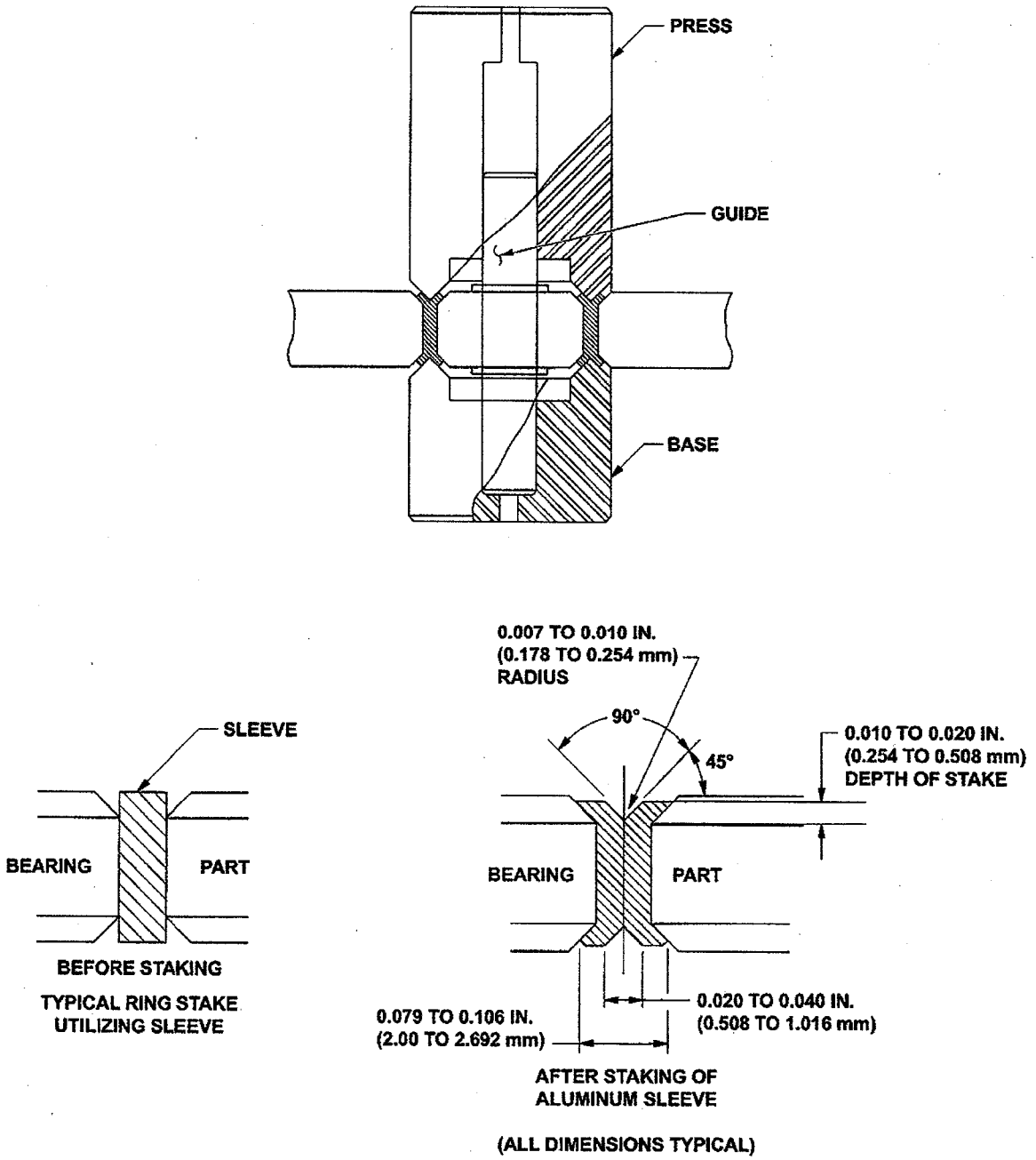


Figure 2 – Typical Ring Stake